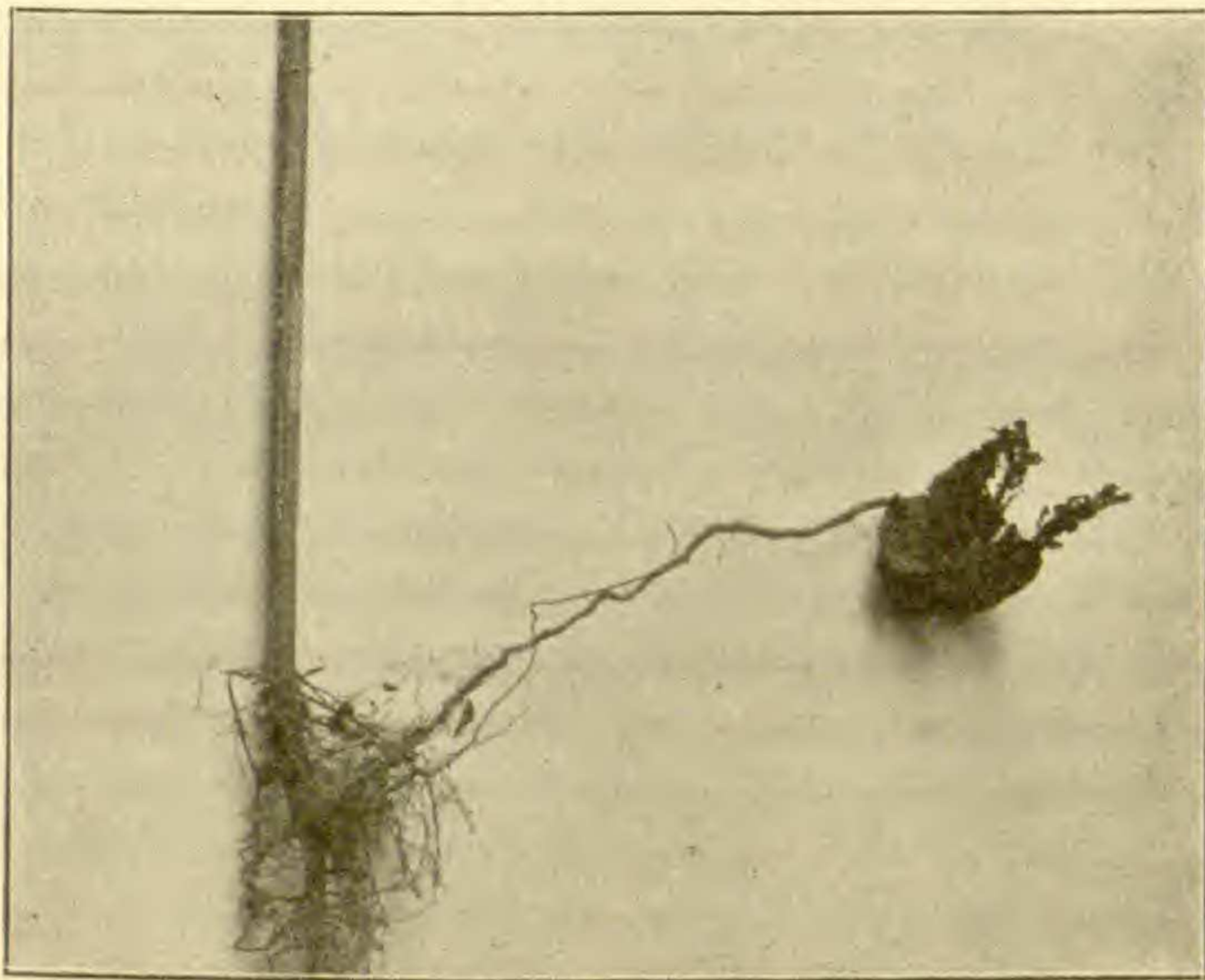


diffuse more rapidly into the passive tissue than the anions, and the active tissue will remain negatively charged.

At no time since the period immediately following the discovery of the law of conservation of energy has the outlook for the progress of physiology appeared brighter than at present. But in order to reap the full benefit of our opportunities we must bear in mind that the fundamental problem of physiology is the determination of the constitution of living matter, and that in order to accomplish our task we must make adequate use of comparative physiology as well as physical chemistry. Pathology, in particular, will be benefited by such a departure.—JACQUES LOEB, *The University of Chicago*.

#### APHYLLON LUDOVICIANUM ON AMBROSIA TRIFIDA.

I HAVE found the Louisiana naked broomrape to be one of the rare plants in this vicinity ; but when found it has always been attached to



the roots of the great ragweed. The roots given out by the host, which connect the two plants, are at first small, so that it is almost impossible to trace them to their destination. But they steadily increase in size, until they are often as large as a wheat straw by the time the parasite has run its course, which is usually about the last of September. There is usually only one supply-root, and this is of nearly the same size its entire length, and a mat of small haustoria is

developed by the guest at the point of contact. The parasitism appears to be complete, as the broomrape has no soil roots.

Perhaps the reason for the existence of some discrepancy and uncertainty as to the real host of some of the species of the broomrapes is due to the fact that they have not been kept under observation until the parasite had matured and withered.

The accompanying cut, made from a photograph and reduced to one-fourth natural size, shows in a striking manner how the one root of the ragweed has grown at the expense of the rest.—J. SCHNECK, *Mt. Carmel, Ill.*

### BIDENS CONNATUS MÜHLENBERG.

IN THE year 1874 I found on lake Ruppin a form of *Bidens*, distinguishable at a glance from our two indigenous species (*B. tripartitus* and *B. cernuus*) by its basal bushy branching, the light green color of its almost always undivided stem-leaves narrowed into a short petiole. Upon closer observation I found that the involucre bracts of the flower heads were mostly in fives, always non-ciliate, and longer than in *B. tripartitus*. Moreover the mature fruits always have four awns and the epidermis rather large warts (Höcker). These peculiarities led me to characterize this form (in *Verhandl. des bot. Ver. der Prov. Brandenburg* 1879: 157-158) under the name *B. tripartitus* L. var.? *fallax*.

Since then, chiefly on account of my bryological studies, the plant has not come to my notice, until it turned up again in the autumn of 1895 on raft-logs in our lake. Of course I recalled having seen and remarked it many years before, but my especial notice of it in 1879 had entirely escaped my memory; thus it happened that after a thorough investigation, laying more stress upon the specific value of the warty four-awned fruit, I published it (in *Æsterr. bot. Zeitschrift* 45: 392, 1895) as *B. decipiens*.

Meanwhile, my long-time friend Professor Dr. Ascherson of Berlin, who had become interested in the plant, made an examination of the Berlin Botanical Museum and referred our plant, by Mühlenberg's type specimen, in Willdenow's herbarium under no. 15,021, to *B. connatus*. The matter would have been thereby settled had I not already received from various parts of North America as *B. connatus* an entirely different plant. In this the fruits are always smooth and usually two-awned, only occasionally having a shorter median awn. They are, thus, just